

# **Exhibit P**

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# Computer Dictionary

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drum, and pinch roller. Flatbed plotters hold the paper still and move the pen along both *x* and *y* axes. Drum plotters roll the paper over a cylinder. The pen moves along one axis while the drum, with the paper attached, moves along the other. Pinch-roller plotters are a hybrid of the two, in which the pen moves only along one axis while the paper is moved back and forth by small rollers.

**PL/SQL** *n.* Short for **Procedural Language Extension to SQL**. Oracle's data manipulation language that allows sequenced or grouped execution of SQL statements and is commonly used to manipulate data in an Oracle database. The syntax is similar to the Ada programming language.

**plug** *n.* A connector, especially a male connector, one that fits into a socket. *See also* male connector.

**plug and play** *n.* **1.** Generally, a reference to the ability of a computer system to automatically configure a device added to it. Plug and play capability exists in Macintoshes based on the NuBus and, since Windows 95, on PC-compatible computers. **2.** When capitalized and, especially, when abbreviated PnP, a set of specifications developed by Intel and Microsoft that allows a PC to configure itself automatically to work with peripherals such as monitors, modems, and printers. A user can plug in a peripheral and "play" it without manually configuring the system. A Plug and Play PC requires both a BIOS that supports Plug and Play and a Plug and Play expansion card. *Abbreviation:* PnP. *See also* BIOS, expansion board, peripheral.

**plugboard** *n.* A board that permits users to control the operation of a device by plugging cables into sockets.

**plug-compatible** *adj.* Equipped with connectors that are equivalent both in structure and in usage. For example, most modems having DB-25 connectors on their rear panels are plug-compatible—that is, one can be replaced by another without the cable having to be rewired. *Compare* pin-compatible.

**plug-in** *n.* **1.** A small software program that plugs into a larger application to provide added functionality. **2.** A software component that plugs into the Netscape Navigator. Plug-ins permit the Web browser to access and execute files embedded in HTML documents that are in formats the browser normally would not recognize, such as many animation, video, and audio files. Most plug-ins are devel-

oped by software companies who have proprietary software in which the embedded files are created. *Compare* helper application.

**p-machine** *n.* *See* pseudomachine.

**PMML** *n.* Acronym for **Predictive Model Markup Language**. An XML-based language that enables sharing of defined predictive models between compliant vendor applications.

**PMMU** *n.* *See* paged memory management unit.

**PMOS** *n.* Acronym for **P-channel metal-oxide semiconductor**. A MOSFET semiconductor technology in which the conduction channel is formed by the movement of holes (electron "vacancies" created as electrons move from atom to atom) rather than electrons. Because holes move more slowly than electrons do, PMOS is slower than NMOS, but it is also easier and less expensive to fabricate. *See also* MOS, MOSFET, P-type semiconductor. *Compare* CMOS, NMOS.

**PMS** *n.* *See* PANTONE MATCHING SYSTEM.

**PNG** *n.* Acronym for **Portable Network Graphics**. A file format for bitmapped graphic images, designed to be a replacement for the GIF format, without the legal restrictions associated with GIF. *See also* GIF.

**PNNI** *n.* Short for **Private Network-to-Network Interface**. A routing protocol used in ATM networks that provides switches with the ability to communicate changes in the network. Through PNNI, switches can be informed of changes to the network as they occur and can then use the information to make appropriate routing decisions. *See also* ATM.

**PnP** *n.* *See* plug and play (definition 2).

**PNP** *n.* *See* PNP transistor.

**PNP transistor** *n.* A type of bipolar transistor in which a base of N-type material is sandwiched between an emitter and a collector of P-type material. The base, emitter, and collector are the three terminals of the transistor through which current flows. In a PNP transistor, holes (electron "vacancies") are the majority of the charge carriers, and they flow from the emitter to the collector. See the illustration. *See also* N-type semiconductor, P-type semiconductor. *Compare* NPN transistor.

ready for it. The term *spooler* is an acronym created from “simultaneous peripheral operations on line.”

**print to file** *n.* A command in many applications that instructs the program to format a document for printing and store the formatted document as a file rather than sending it to a printer.

**print wheel** *n.* *See* daisy wheel.

**priority** *n.* Precedence in receiving the attention of the microprocessor and the use of system resources. Within a computer, unseen and unnoticed levels of priority are the means by which many different types of potential clashes and disruptions are avoided. Similarly, tasks running on a computer can be assigned priorities that determine when and for how long they receive time from the microprocessor. On networks, stations can be assigned priorities that determine when and how often they can control the communications line, and messages can be assigned priorities that indicate how soon they must be transmitted. *See also* interrupt.

**Priority Frame** *n.* A telecommunications protocol developed by Infonet and Northern Telecom, Inc., designed to carry data, facsimile, and voice information.

**privacy** *n.* The concept that a user’s data, such as stored files and e-mail, is not to be examined by anyone else without that user’s permission. A right to privacy is not generally recognized on the Internet. Federal law protects only e-mail in transit or in temporary storage, and only against access by Federal agencies. Employers often claim a right to inspect any data on their systems. To obtain privacy, the user must take active measures such as encryption. *See also* encryption, PGP, Privacy Enhanced Mail. *Compare* security.

**Privacy Enhanced Mail** *n.* An Internet standard for e-mail systems that use encryption techniques to ensure the privacy and security of messages. *Acronym:* PEM. *See also* encryption, standard. *Compare* PGP.

**privacy policy** *n.* Public statement delineating how a Web site uses the information it gathers from visitors to the site. Some Web sites sell this information to third parties or use the information for marketing purposes. Other sites have strict policies limiting how that information may be used.

**private** *adj.* A keyword used in some programming languages to signify that methods or variables can be

accessed only by elements residing in the same class or module. *See also* class, keyword (definition 2), local variable, reserved word, scope. *Compare* public.

**private assembly** *n.* An assembly that is used by only one application. A private assembly is deployed into the directory structure of the application that uses it. *Also called:* private side-by-side assembly. *See also* shared assembly.

**Private Branch Exchange** *n.* *See* PBX.

**private channel** *n.* In Internet relay chat (IRC), a channel reserved for the use of a certain group of people. Private channel names are hidden from view by the public at large. *Also called:* secret channel. *See also* IRC.

**Private Communications Technology** *n.* *See* PCT (definition 2).

**private folders** *n.* In a shared network environment, those folders on a user’s computer that are not accessible by other users on the network. *Compare* public folders.

**private key** *n.* One of two keys in public key encryption. The user keeps the private key secret and uses it to encrypt digital signatures and to decrypt received messages. *See also* public key encryption. *Compare* public key.

**private line** *n.* *See* dedicated line (definition 1).

**Private Network-to-Network Interface** *n.* *See* PNNI.

**privatization** *n.* Generally, the process of turning something over from government to commercial industry control. In the context of computer science and the Internet, the term refers to the government’s turning over of various Internet backbones to private industry—for example, control of NSFnet was passed from the government to private business in 1992—and to the government’s more recent (1998) privatization of responsibility for domain names and addresses, which was shifted from IANA and NSI/InterNIC to a new organization known as ICANN. *See also* IANA, ICANN, InterNIC.

**privileged instruction** *n.* An instruction (usually a machine instruction) that can be executed only by the operating system. Privileged instructions exist because the operating system needs to perform certain operations that applications should not be allowed to perform; therefore, only the operating-system routines have the necessary privilege to execute these particular instructions.

from the beginning of the file, rather than from any point, as can be the case with true streaming. *See also* stream.

**PSK** *n.* *See* phase-shift keying.

**PSN** *n.* Acronym for packet-switching network. *See* packet switching.

**PSTN** *n.* *See* Public Switched Telephone Network.

**p-system** *n.* An operating system based on a pseudomachine implemented in software. A program written for the p-system is more portable than one written for a machine-dependent operating system. *See also* UCSD p-System.

**P-type semiconductor** *n.* Semiconductor material in which electrical conduction is carried by holes (“vacancies” left by electrons). Whether a semiconductor is N-type or P-type depends on the kind of dopant added during manufacture. A dopant with a shortage of electrons results in a P-type semiconductor. *Compare* N-type semiconductor.

**pub** *n.* *See* /pub.

**/pub** *n.* Short for **public**. A directory in an anonymous FTP archive that is accessible by the public and that generally contains files available for free download. *See also* anonymous FTP.

**public** *adj.* A keyword in some programming languages to signify that methods or variables can be accessed by elements residing in other classes or modules. *See also* class., keyword (definition 2), global variable, reserved word, scope. *Compare* private.

**public directory** *n.* A directory on an FTP server that is accessible by anonymous users for the purpose of retrieving or storing files. Often the directory is called /pub. *See also* anonymous FTP, FTP (definition 1), FTP server /pub.

**public domain** *n.* The set of all creative works, such as books, music, or software, that are not covered by copyright or other property protection. Works in the public domain can be freely copied, modified, and otherwise used in any manner for any purpose. Much of the information, texts, and software on the Internet is in the public domain, but putting a copyrighted work on the Internet does not put it in the public domain. *Compare* proprietary.

**public-domain software** *n.* A program donated for public use by its owner or developer and freely available for copying and distribution. *Compare* free software, freeware, proprietary software, shareware.

**public files** *n.* Files with no access restrictions.

**public folders** *n.* The folders that are made accessible on a particular machine or by a particular user in a shared networking environment. *Compare* private folders.

**public key** *n.* One of two keys in public key encryption. The user releases this key to the public, who can use it for encrypting messages to be sent to the user and for decrypting the user’s digital signature. *See also* public key encryption. *Compare* private key.

**public key cryptography** *n.* *See* public key encryption.

**public key encryption** *n.* An asymmetric scheme that uses a pair of keys for encryption: the public key encrypts data, and a corresponding secret key decrypts it. For digital signatures, the process is reversed: the sender uses the secret key to create a unique electronic number that can be read by anyone possessing the corresponding public key, which verifies that the message is truly from the sender. *See also* private key, public key.

**public rights** *n.* In the context of the Internet, the extent to which members of the public are permitted to use (and to place) information on the Internet under intellectual property law. *See also* fair use, public domain, public-domain software.

**Public Switched Telephone Network** *n.* The public telephone system.

**Publisher** *n.* A software application developed by Microsoft Corporation to help businesses create high-quality marketing and business material. A part of the Office product family, Publisher provides business users with design options for a variety of publications, such as newsletters, flyers, brochures, and Web pages.

**publishing point** *n.* A publishing point is a virtual directory used for storing content or delivering a live stream. End users reach a publishing point through its URL. There are two types of unicast publishing points: on-demand for stored content and broadcast for live streams. *See also* on-demand publishing point, broadcast publishing point. *Compare* unicast.

**puck** *n.* A pointing device used with a graphics tablet. A puck, which is often used in engineering applications, is a mouselike device with buttons for selecting items or choosing commands and a clear plastic section extending from one end with cross hairs printed on it. The intersection of the cross hairs on the puck points to a location on the graphics tablet, which in turn is mapped to a specific

in a routing table differs according to whether it is used by a bridge or a router. A bridge relies on both the source (originating) and destination addresses to determine where and how to forward a packet. A router relies on the destination address and on information in the table that gives the possible routes—in hops or in number of jumps—between itself, intervening routers, and the destination. Routing tables are updated frequently as new or more current information becomes available. *See also* bridge, hop, internetwork, router.

**row** *n.* A series of items arranged horizontally within some type of framework—for example, a continuous series of cells running from left to right in a spreadsheet; a horizontal line of pixels on a video screen; or a set of data values aligned horizontally in a table. *Compare* column.

**royalty-free** *n.* The absence of a requirement to pay the original owner of music, images, software, or other content for the right to use, edit, or distribute their content.

**RPC** *n.* *See* remote procedure call.

**RPF** *n.* *See* reverse path forwarding.

**RPG** *n.* **1.** *See* role-playing game. **2.** Acronym for Report Program Generator. An IBM programming platform introduced in 1964. The earliest version of RPG was not a language but a program generator intended to aid in producing business reports. Versions of RPG have been developed for various platforms, including IBM's AS/400 server, UNIX, MS-DOS, and Windows.

**RPN** *n.* Acronym for reverse Polish notation. *See* postfix notation.

**RPROM** *n.* Short for reprogrammable PROM. *See* EPROM.

**RS-232-C standard** *n.* An accepted industry standard for serial communications connections. Adopted by the Electrical Industries Association, this Recommended Standard (RS) defines the specific lines and signal characteristics used by serial communications controllers to standardize the transmission of serial data between devices. The letter *C* denotes that the current version of the standard is the third in a series. *See also* CTS, DSR, DTR, RTS, RXD, TXD.

**RS-422/423/449** *n.* Standards for serial communications with transmission distances over 50 feet. RS-449 incorporates RS-422 and RS-423. Macintosh serial ports are RS-422 ports. *See also* RS-232-C standard.

**RSA** *n.* A widely used public/private key algorithm. It is the default cryptographic service provider (CSP) for

Microsoft Windows. It was patented by RSA Data Security, Inc., in 1977. *See also* cryptographic service provider.

**RSAC** *n.* *See* Recreational Software Advisory Council.

**RSA encryption** *n.* Short for Rivest-Shamir-Adleman encryption. The public key encryption algorithm, introduced by Ronald Rivest, Adi Shamir, and Leonard Adleman in 1978, on which the PGP (Pretty Good Privacy) encryption program is based. *See also* PGP, public key encryption.

**RSI** *n.* *See* repetitive strain injury.

**RSN** *adv.* *See* Real Soon Now.

**R-squared value** *n.* An indicator from 0 to 1 that reveals how closely the estimated values for the trendline correspond to your actual data. A trendline is most reliable when its R-squared value is at or near 1. *Also called:* the coefficient of determination.

**RSVP** *n.* *See* Resource Reservation Setup Protocol.

**RTC** *n.* *See* clock (definition 2).

**RTCP** *n.* *See* Real-Time Control Protocol.

**RTF** *n.* *See* Rich Text Format.

**RTFM** *n.* Acronym for read the flaming (or friendly) manual. A common answer to a question in an Internet newsgroup or product support conference that is adequately explained in the instruction manual. (The F in this acronym is not necessarily assumed to represent polite language.) *Also called:* RTM.

**RTM** *n.* Acronym for read the manual. *See* RTFM.

**RTOS** *n.* *See* real-time operating system.

**RTP** *n.* *See* Real-Time Protocol.

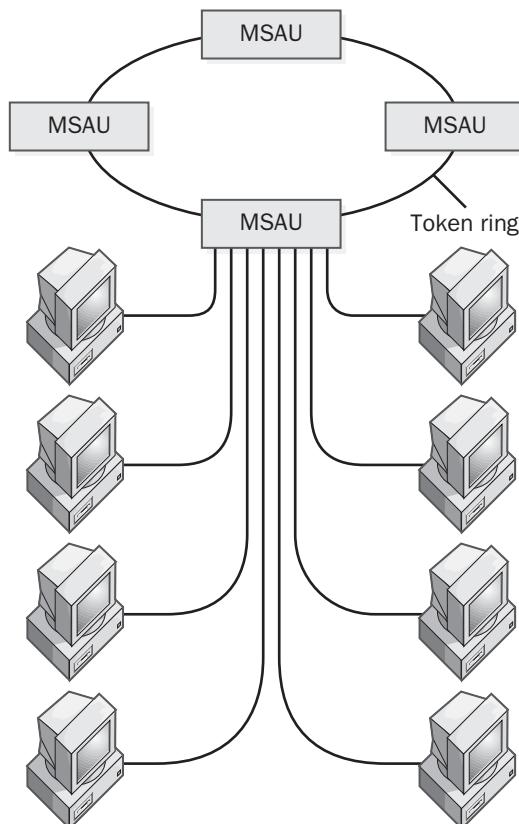
**RTS** *n.* Acronym for Request to Send. A signal sent, as from a computer to its modem, to request permission to transmit; the signal is often used in serial communications. RTS is a hardware signal sent over pin 4 in RS-232-C connections. *See also* RS-232-C standard. *Compare* CTS.

**RTSP** *n.* *See* Real-Time Streaming Protocol.

**rubber banding** *n.* In computer graphics, changing the shape of an object made up of connected lines by “grabbing” a point on an anchored line and “pulling” it to the new location.

**Ruby** *n.* An interpreted open source scripting language for object-oriented programming. Its simple syntax is partially based on the syntax of Eiffel and Ada. Considered to

**Token Ring network** *n.* A token-passing, ring-shaped local area network (LAN) developed by IBM that operates at 4 megabits (4 million bits) per second. With standard telephone wiring, the Token Ring network can connect up to 72 devices; with shielded twisted-pair (STP) wiring, the network supports up to 260 devices. Although it is based on a ring (closed loop) topology, the Token Ring network uses star-shaped clusters of up to eight workstations connected to a wiring concentrator (Multistation Access Unit, or MSAU), which, in turn, is connected to the main ring. The Token Ring network is designed to accommodate microcomputers, minicomputers, and mainframes; it follows the IEEE 802.5 standards for token ring networks. See the illustration. *See also* ring network, STP, token passing.



**Token Ring network.** An IBM Token Ring configuration with MSAUs.

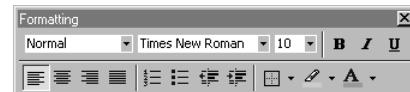
**tone** *n.* **1.** A particular tint of a color. *Also called:* shade, value. *See also* brightness, color model. **2.** One sound or signal of a particular frequency.

**tone compression** *n.* In digital graphics, the compression of the complete color range of an image to the narrower range of the chosen output device. Allowing for tone compression in scanning and graphics editing may improve the quality of the final printed image.

**toner** *n.* Powdered pigment that is used in office copiers and in laser, LED, and LCD printers. *See also* electrophotographic printers.

**toner cartridge** *n.* A disposable container that holds toner for a laser printer or other page printer. Some types of toner cartridge contain toner only; however, the most popular printer engines pack all expendables, including toner and the photosensitive drum, in a single cartridge. Toner cartridges are interchangeable among printers that use the same engine.

**toolbar** *n.* In an application in a graphical user interface, a row, column, or block of on-screen buttons or icons. When these buttons or icons are clicked on with the mouse, macros or certain functions of the application are activated. For example, word processors often feature toolbars with buttons for changing text to italic, boldface, and other styles. Toolbars often can be customized by the user and usually can be moved around on the screen according to the user's preference. See the illustration. *See also* graphical user interface. *Compare* menu bar, palette (definition 1), taskbar, title bar.



**Toolbar.**

**toolbox** *n.* A set of predefined (and usually precompiled) routines a programmer can use in writing a program for a particular machine, environment, or application. *Also called:* toolkit. *See also* library (definition 1).

**Toolbox** *n.* A set of routines stored mostly in the read-only memory of a Macintosh that provides application programmers with the tools needed to support the graphical interface characteristic of the computer. *Also called:* User Interface Toolbox.

**Tool Command Language/Tool Kit** *n.* *See* Tcl/Tk.

**toolkit** *n.* *See* toolbox.

**ToolTips** *n.* Brief descriptions of the names of buttons and boxes on toolbars and in the toolbox. A ToolTip is displayed when the mouse pointer rests on the button or combo box. *See also* ScreenTips.

# W

**w<sup>3</sup>** *n.* See World Wide Web.

**W3** *n.* See World Wide Web.

**W3C** *n.* Abbreviation for the World Wide Web Consortium, a standards body based in the United States, Europe, and Japan. The W3C is dedicated (in part) to encouraging the development of open Web standards, such as the HTML and XML document markup languages, to promote interoperability and assist the Web in achieving its potential.

**wafer** *n.* A thin, flat piece of semiconductor crystal used in the fabrication of integrated circuits. Various etching, doping, and layering techniques are used to create the circuit components on the surface of the wafer. Usually multiple identical circuits are formed on a single wafer, which is then cut into sections. Each integrated circuit then has leads attached and is packaged in a holder. *See also* integrated circuit, semiconductor.

**wafer-scale integration** *n.* The fabrication on a single wafer of different microcircuits that are then connected to form a single circuit the full size of the wafer. *See also* wafer.

**WAI** *n.* Acronym for Web Accessibility Initiative. A set of guidelines released by the World Wide Web Consortium (W3C) in May 1999. The WAI is intended to promote Web accessibility for users with disabilities by setting Web design and compatibility guidelines that help assure Web access and usability for all users. *See also* accessibility.

**WAIS** *n.* Acronym for Wide Area Information Server. A UNIX-based document search and retrieval system on the Internet that can be used to search over 400 WAIS libraries, such as Project Gutenberg, for indexed files that match keywords entered by the user. WAIS can also be used on an individual Web site such as a search engine. WAIS, developed by Thinking Machines Corporation, Apple Computer, and Dow Jones, uses the Z39.50 standard to process natural language queries. The list of documents returned by WAIS often contains numerous false matches. Users need a WAIS client to use a WAIS server. *See also* natural language query, Project Gutenberg, search engine, Z39.50 standard.

**WAIS client** *n.* The program needed for accessing the WAIS (Wide Area Information Server) system to search

its databases. A WAIS client program must be installed on a user's own machine or accessed from a computer with such a program already installed. Many freeware and shareware WAIS programs for various operating systems, including UNIX, MS-DOS, OS/2, and Windows, are available for download on the Internet. To look for documents in a WAIS database, the user selects the database(s) to search and types a query containing keywords to search for. The WAIS client sends this query to the server, communicating with the server via the Z39.50 protocol. The server processes the request using indexes and returns a list of document headlines matching the query to the client. The user can then choose which document to retrieve, send that request to the server, and receive the complete document in return. *See also* WAIS.

**WAIS database** *n.* See WAIS.

**waistindex** *n.* **1.** A UNIX utility for building an index to text files for access using WAIS (Wide Area Information Server) query software. **2.** A URL for accessing WAIS. The URL takes the form `wais://hostport/database[? search]`.

**WAIS library** *n.* A WAIS (Wide Area Information Server) database. A WAIS library is a comprehensive collection of online documents on a specific topic—for example, Project Gutenberg's collection of public-domain literary and historical texts available over the Internet, and the Dow Jones Information Service collection of business and financial information products. Because the hundreds of WAIS free libraries currently accessible are updated and maintained by volunteers, the quality of topic coverage is uneven. *See also* WAIS, WAIS client, Project Gutenberg.

**WAIS server** or **waisserver** *n.* See WAIS.

**wait state** *n.* A processing cycle of the microprocessor during which it only waits for data from an input/output device or from memory. While a single wait state is not humanly perceptible, the cumulative effect of wait states is to slow system performance. *See also* zero wait state.

**wallet** *n.* In electronic commerce, a software program that contains a user's address and credit card information for use in paying for online purchases. When the wallet is opened at the electronic checkout, it identifies the user to

the merchant's server and allows the user to authorize the appropriate debit to a credit card.

**wallpaper** *n.* In a graphical user interface such as Windows, a pattern or picture in the screen background that can be chosen by the user. *See also* graphical user interface.

**WAN** *n.* Acronym for **wide area network**. A geographically widespread network, one that relies on communications capabilities to link the various network segments. A WAN can be one large network, or it can consist of a number of linked LANs (local area networks).

**wand** *n.* Any pen-shaped device used for data entry, such as a graphics tablet's stylus or, most commonly, the scanning instrument used with many bar code readers. *See also* optical scanner, scan head. *Compare* stylus.

**wanderer** *n.* A person who frequently uses the World Wide Web. Many of these people make indexes of what they find.

**WAP** *n.* *See* Wireless Application Protocol.

**war dialer** *n.* A computer program that calls a range of phone numbers to identify those numbers that make a connection to a computer modem. War dialers are typically used by hackers to search for vulnerable computers and, once a connection is made, the war dialers may automatically probe the computer for potential weaknesses. Early war dialer programs called demon dialers were used to crack telephone systems in the 1970s and 1980s.

**warez** *n.* Illegal copies of computer software distributed through the Internet and other online channels, such as bulletin boards and FTP servers. The spelling is part of the tendency among some online groups to use odd symbols and intentional misspellings. *Compare* freeware, shareware.

**warm boot** *n.* The restarting of a running computer without first turning off the power. *Also called:* soft boot, three-finger salute, vulcan death grip, warm start.

**warm start** *n.* *See* warm boot.

**warp** *vb.* Sometimes used by computer game developers to describe the need to completely redraw a screen within a game. For example, moving through a door or advancing to a higher level would require a complete screen overhaul. *See also* computer game.

**watchdog** *n.* A hardware device (usually a timer or driver) used to monitor continuing system health and functionality through communications with the system software using a dedicated device driver.

**watermark** *n.* A semitransparent image often used for letters and business cards. In currency, a watermark is visible when you hold a bill up to the light.

**watt** *n.* The unit of power equal to the expenditure of 1 joule of energy in 1 second. The power of an electrical circuit is a function of the potential across the circuit and the current flowing through the circuit. If  $E$  = potential,  $I$  = current, and  $R$  = resistance, power in watts can be calculated as  $I \times E$ ,  $I^2 \times R$ , or  $E^2/R$ .

**.wav** *n.* The file extension that identifies sound files stored in waveform (WAV) audio format. *See also* WAV.

**WAV** *n.* A file format in which Windows stores sounds as waveforms. Such files have the extension .wav. Depending on the sampling frequency, on whether the sound is monaural or stereo, and on whether 8 or 16 bits are used for each sample, one minute of sound can occupy as little as 644 kilobytes or as much as 27 megabytes of storage. *See also* sampling, waveform.

**wave** *n.* **1.** Any disturbance or change that has an oscillatory, periodic nature, for example, a light or sound wave. *See also* waveform. **2.** In electronics, the time-amplitude profile of an electrical signal.

**wave division multiplexing** *n.* *See* dense wavelength division multiplexing.

**waveform** *n.* The manner in which a wave's amplitude changes over time. *See also* period, phase, wavelength.

**wavelength** *n.* The distance between successive peaks or troughs in a periodic signal that is propagated through space. Wavelength is symbolized by the Greek letter lambda and can be calculated as speed divided by frequency.

**wavelet** *n.* A mathematical function that varies over a limited extent of time. Wavelets are coming into increasing use for analyzing signals (such as sound). They have limited duration and sudden changes in frequency and amplitude rather than the infinite duration and constant amplitude and frequency of the sine and cosine functions. *Compare* Fourier transform.

**wave table synthesis** or **wavetable synthesis** *n.* A method of producing sound, especially music, through a PC. Wave table synthesis is based on use of a wave table, which is a collection of digitized sound samples taken from recordings of actual instruments. These samples are typically stored on a sound card and are edited and mixed together to produce music. Wave table synthesis produces

higher quality audio output than FM (frequency modulation) techniques.

**WBEM** *n.* Acronym for **Web-Based Enterprise Management**. A protocol that links a Web browser directly to a device or an application that monitors a network. *See also* communications protocol.

**WDEF** *n.* *See* window definition function.

**WDL** *n.* *See* Windows Driver Library.

**WDM** *n.* *See* dense wavelength division multiplexing, Windows Driver Model.

**weak typing** *n.* A characteristic of a programming language that allows the program to change the data type of a variable during program execution. *See also* data type, variable. *Compare* strong typing.

**wearable computer** *n.* A portable personal computer that its user wears like eyeglasses, clothing, or a wrist-watch but which, unlike those items, is interactive, responds to commands, and carries out instructions. A wearable computer may be used like a conventional computer for data collection, storage, and retrieval, but without tying the user to a stationary location while operating the computer. The earliest wearable computers were clandestine devices used in the mid-1960s to predict the performance of roulette wheels. Today, wearable computers are used for such applications as inventory and express package tracking.

**web** *n.* A set of interlinked documents in a hypertext system. The user enters the web through a home page. *See also* World Wide Web.

**Web** *n.* *See* World Wide Web.

**Web Accessibility Initiative** *n.* *See* WAI.

**Web address** *n.* *See* URL.

**Web application** *n.* A set of clients and servers that cooperate to provide the solution to a problem.

**Web architect** *n.* An individual who analyzes the purpose of a Web site and forms a plan for assembling and integrating the hardware, software, and other technical resources necessary to make the site function properly.

**Web author** *n.* A person who creates content for the World Wide Web. A Web author might be a writer who produces text for a designer to include in a Web page, or a Web designer who writes the text and also adds graphic elements and prepares the HTML code.

**Web-Based Enterprise Management** *n.* *See* WBEM.

**Web browser** *n.* Software that lets a user view HTML documents and access files and software related to those documents. Originally developed to allow users to view or browse documents on the World Wide Web, Web browsers can blur the distinction between local and remote resources for the user by also providing access to documents on a network, an intranet, or the local hard drive. Web browser software is built on the concept of hyperlinks, which allow users to point and click with a mouse in order to jump from document to document in whatever order they desire. Most Web browsers are also capable of downloading and transferring files, providing access to newsgroups, displaying graphics embedded in the document, playing audio and video files associated with the document, and executing small programs, such as Java applets or ActiveX controls included by programmers in the documents. Helper applications or plug-ins are required by some Web browsers to accomplish one or more of these tasks. *Also called:* browser. *See also* ActiveX control, helper application, hyperlink, Internet Explorer, Java applet, Lynx, Mosaic, Netscape Navigator, plug-in.

**Web bug** *n.* A small, nearly undetectable graphic that links to a Web page and is embedded in a document for use as an eavesdropping device. A Web bug usually takes the form of a 1-by-1-pixel transparent GIF file, so it is nearly invisible. This file is placed in a Web page, Microsoft Word file, or other document that users will access. The application in which the document is opened immediately links to the Web to download and display the embedded graphic. Information about the user, including IP address, browser, referrer, and time viewed, is passed to the author of the file when the application retrieves the invisible graphic information.

**Webby Award** *n.* Award bestowed annually by the International Academy of Digital Arts and Sciences to Web sites. The academy bestows awards to Web sites in more than 20 categories, which include technical achievement, humor, and best community site.

**Web cam** or **webcam** *n.* A video camera whose output appears on a Web page, usually updated on a regular and frequent schedule. Web cams are used to display weather and traffic conditions, to allow customers and other users to observe current activities at the site owner's business or home (for example, at a day care center), for promotional purposes, and as a form of "gee whiz, look at this!" entertainment.

**WebPad** *n.* A class of wireless Internet appliances offering full Internet and personal digital assistant (PDA) functions. A WebPad features a larger LCD screen than other handheld communications devices and resembles a tablet.

**Web page** *n.* A document on the World Wide Web. A Web page consists of an HTML file, with associated files for graphics and scripts, in a particular directory on a particular machine (and thus identifiable by a URL). Usually a Web page contains links to other Web pages. *See also* URL.

**Web page embedding** *n.* Embedding a digital streaming media player directly onto a Web page using HTML code. Rather than displaying a hyperlink to the media file, Web page embedding uses browser plug-ins to present the media player as a visual element in the layout of the Web page.

**Web phone** *n.* *See* Internet telephone.

**Web Presence Provider** *n.* A Web hosting and Internet service provider who manages the Web server hardware and software required to make a Web site available on the Internet. *Acronym:* WPP.

**Web rage** *n.* **1.** Anger or frustration related to the use or operation of the Internet. **2.** An intemperate, rude, or angry posting on the Internet; a flame. **3.** The latest fad to gain popularity among Web users.

**websafe palette** *n.* *See* browser CLUT.

**Web server** *n.* *See* HTTP server.

**Web server control** *n.* An ASP.NET server control that belongs to the System.Web.UI.WebControls namespace. Web server controls are richer and more abstract than HTML server controls. A Web server control has an <asp:ControlName> prefix on an ASP.NET page. *See also* ASP.NET server control, HTML server control, namespace.

**Web services** *n.* A modular collection of Web protocol-based applications that can be mixed and matched to provide business functionality through an Internet connection. Web services can be used over the Internet or an intranet to create products, business processes, and B2B interactions. Web services use standard Internet protocols such as HTTP, XML, and SOAP to provide connectivity and interoperability between companies.

**Web Services Description Language** *n.* *See* WSDL.

**Web site** *n.* A group of related HTML documents and associated files, scripts, and databases that is served up by

an HTTP server on the World Wide Web. The HTML documents in a Web site generally cover one or more related topics and are interconnected through hyperlinks. Most Web sites have a home page as their starting point, which frequently functions as a table of contents for the site. Many large organizations, such as corporations, will have one or more HTTP servers dedicated to a single Web site. However, an HTTP server can also serve several small Web sites, such as those owned by individuals. Users need a Web browser and an Internet connection to access a Web site. *See also* home page, HTML, HTTP server (definition 1), Web browser.

**Web Storage System** *n.* The storage component of Exchange 2000 Server and SharePoint Portal servers, which integrates Web server, database, file system, and workgroup functionality. The Web Storage System lets you store and share many types of data in a single integrated system. *Acronym:* WSS.

**Web switch** *n.* A network device—a switch—designed to optimize Web traffic routing by using the information embedded in HTTP requests to route the requests to the most appropriate servers, no matter where they are located. Web switches are intended to address issues of speed, scalability, and performance for high-volume Web sites. *See also* switch.

**Web terminal** *n.* A system containing a central processing unit (CPU), RAM, a high-speed modem or other means of connecting to the Internet, and powerful video graphics, but no hard disk, intended to be used solely as a client to the World Wide Web rather than as a general-purpose computer. *Also called:* network computer.

**Web-to-host** *n.* A service that allows remote users to access programs and data on legacy or mainframe systems through a Web browser. Web-to-host packages typically include a combination of services such as emulation support, legacy access, centralized management, host services, and security options, with some degree of customization possible. *See also* legacy system, mainframe computer.

**WebTV** *n.* A system that provides consumers with the ability to access the Web as well as send and receive e-mail on a television by means of a set-top box equipped with a modem. Users must have an ISP (Internet service provider) and subscribe to the WebTV Network. Developed by WebTV Networks, WebTV was purchased by Microsoft in 1996.

the program and the equipment in use, word processors can display documents either in text mode (using highlighting, underlining, or color to represent italics, boldfacing, and other such formatting) or in graphics mode (in which formatting and, sometimes, a variety of fonts appear on the screen as they will on the printed page). All word processors offer at least limited facilities for document formatting, such as font changes, page layout, paragraph indentation, and the like. Some word processors can also check spelling, find synonyms, incorporate graphics created with another program, align mathematical formulas, create and print form letters, perform calculations, display documents in multiple on-screen windows, and enable users to record macros that simplify difficult or repetitive operations. *Compare* editor, line editor.

**wordwrap** or **word wrap** *n.* The ability of a word processing program or a text-editing program to break lines of text automatically to stay within the page margins or window boundaries of a document without the user having to do so with carriage returns, as is typically necessary when using a typewriter. *See also* hard return, soft return.

**workaround** *n.* A tactic for accomplishing a task despite a bug or other inadequacy in software or hardware without actually fixing the underlying problem. *See also* kludge.

**workbook** *n.* In a spreadsheet program, a file containing a number of related worksheets. *See also* worksheet.

**workflow application** *n.* A set of programs that aids in the tracking and management of all the activities in a project from start to finish.

**workgroup** *n.* A group of users working on a common project and sharing computer files, typically over a LAN (local area network). *See also* groupware.

**workgroup computing** *n.* A method of working electronically in which various individuals on the same project share resources and access to files using a network arrangement, such as a local area network, enabling them to coordinate their separate tasks. This is accomplished through using software designed for workgroup computing. *See also* groupware.

**Workplace Shell** *n.* The graphical user interface of OS/2. Like the Mac OS and Windows 95, the Workplace Shell is document-centric. Document files are displayed as icons; clicking an icon starts the corresponding application, and the user can print a document by dragging the document's icon to a printer icon. The Workplace Shell uses the graphical functions of Presentation Manager. *Acronym:* WPS.

**worksheet** *n.* In a spreadsheet program, a page organized into rows and columns appearing on screen and used for constructing a single table.

**workstation** *n.* **1.** A combination of input, output, and computing hardware that can be used for work by an individual. **2.** A powerful stand-alone computer of the sort used in computer-aided design and other applications requiring a high-end, usually expensive, machine with considerable calculating or graphics capability. **3.** A microcomputer or terminal connected to a network.

**World Wide Web** *n.* The total set of interlinked hypertext documents residing on HTTP servers all around the world. Documents on the World Wide Web, called pages or Web pages, are written in HTML (Hypertext Markup Language), identified by URLs (Uniform Resource Locators) that specify the particular machine and pathname by which a file can be accessed, and transmitted from server to end user under HTTP (Hypertext Transfer Protocol). Codes, called tags, embedded in an HTML document associate particular words and images in the document with URLs so that a user can access another file, which may be halfway around the world, at the press of a key or the click of a mouse. These files may contain text (in a variety of fonts and styles), graphics images, movie files, and sounds as well as Java applets, ActiveX controls, or other small embedded software programs that execute when the user activates them by clicking a link. A user visiting a Web page also may be able to download files from an FTP site and send messages to other users via e-mail by using links on the Web page. The World Wide Web was developed by Timothy Berners-Lee in 1989 for the European Laboratory for Particle Physics, or Conseil Européen pour le Recherche Nucléaire, in French (CERN). *Acronym:* WWW. *Also called:* w<sup>3</sup>, W3, Web. *See also* ActiveX controls, HTML, HTTP, HTTP server (definition 2), Java applet, URL.

**World Wide Web Consortium** *n.* *See* W3C.

**worm** *n.* A program that propagates itself across computers, usually by creating copies of itself in each computer's memory. A worm might duplicate itself in one computer so often that it causes the computer to crash. Sometimes written in separate segments, a worm is introduced surreptitiously into a host system either as a prank or with the intent of damaging or destroying information. *See also* bacterium, Internet Worm, Trojan horse, virus.

**WORM** *n.* Acronym for **w**rite **o**nce, **r**ead **m**any. A type of optical disc that can be read and reread but cannot be

